

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401**

MONITORING AND REPORTING PROGRAM NO. R3-2004-0005

for

**CITY OF MORRO BAY DESALINATION FACILITY
SAN LUIS OBISPO COUNTY**

A. INFLUENT MONITORING

Representative influent samples shall be collected and analyzed as follows:

Constituent	Units	Type of Sample	Sampling and Analyzing Frequency
Temperature	°F	Grab	Twice per month, or at least twice during each operational period, whichever is greater
Total Suspended Solids	mg/L	24-hr Composite	" "
Total Dissolved Solids	mg/L	Grab	" "
Electrical Conductance	µmhos/cm	Grab	" "
Iron	mg/L	Grab	" "
Copper	mg/L	Grab	" "
Chromium (Total)	mg/L	Grab	Annually
Chromium (Hex)	mg/L	Grab	" "
Arsenic	mg/L	Grab	" "
Lead	mg/L	Grab	" "
Mercury	mg/L	Grab	" "
Nickel	mg/L	Grab	" "
Silver	mg/L	Grab	" "
Zinc	mg/L	Grab	" "
Cyanide	mg/L	Grab	" "

B. EFFLUENT MONITORING

Representative samples of effluent discharged to the ocean shall be collected and analyzed as follows. All sampling shall be performed during peak operational periods.

Parameter	Units	Type of Sample	Sampling and Analyzing Frequency
Beginning and end of facility operation	Date and time	--	Daily
Daily Flow	Million Gallons	Metered	Daily
Mean Daily Flow	Million Gallons per Day (MGD)	Calculated	Monthly

Parameter	Units	Type of Sample	Sampling and Analyzing Frequency
Total Suspended Solids	mg/L	24-hr Composite	Twice per month, or at least twice during each operational period, whichever is greater
Net Total Suspended Solids ¹	mg/L	Calculated	" "
Total Dissolved Solids	mg/L	Grab	" "
Electrical Conductance	umhos/cm	Grab	" "
Iron	mg/L	Grab	" "
Copper	mg/L	Grab	" "
Temperature	°F	Grab	" "
Settleable Solids	mg/L	Grab	" "
pH	units	Grab	" "
Turbidity	NTU	Grab	Quarterly, or at least once during each operational period, whichever is greater
BOD ₅	mg/L	24-Composite	" "
Grease and Oil	MPN/100mL	Grab	" "
Dissolved Oxygen	mg/L	Grab	" "
Ammonia (as N)	mg/L	Grab	" "
Phenolic Compounds (non-chlorinated)	mg/L	24-hour Composite	" "
Chlorinated Phenolics	mg/L	24-hour Composite	" "
Acrylic Acid ²	mg/L	24-hour Composite	Semi-Annually, or at least once during each operational period, whichever is greater
Chronic Toxicity ³	TUc	Grab	" "

¹ Net Total Suspended Solids may be determined by subtracting influent concentrations from concurrently sampled effluent concentrations.

² Not required if anti-scaling compounds are not used for the entire operational period.

³ Critical life stage toxicity tests are required to measure chronic toxicity (TUc). A minimum of three test species with approved test protocols shall be used to measure compliance with the toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, and after Executive Officer approval, monitoring can be reduced to the most sensitive species. Dilution and control water should be obtained from an unaffected area of the receiving water. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results. The following tests shall be used to measure TUc:

Species	Effect	Test Duration	Bioassay Reference
abalone, <i>Haliotis rufescens</i>	abnormal shell development	48 hours	See 2001 Ocean Plan
giant kelp, <i>Macrosystis pyrifera</i>	% germination; germ tube length	48 hours	" "
Silversides, <i>Menidia beryllina</i>	larval growth rate; percent survival	7 days	" "

Toxicity Reduction Requirements:

If the discharge consistently exceeds an effluent limitation based on toxicity objectives, a toxicity reduction evaluation (TRE) shall be required. The TRE shall include all reasonable steps to identify the source of the toxicity. Once the toxicity is identified, the Discharger shall take all reasonable steps to reduce toxicity to the required level.

Protection of Marine Aquatic Life

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Minimum Levels ⁴ (µg/L)
Arsenic	mg/L	24-hr. Composite	Semi-Annually, or at least once during each operational period, whichever is greater	All methods contained in Table II-3, pg 33 of 2001 Ocean Plan, with exception to the Direct Current Plasma method
Cadmium	mg/L	" "	" "	" "
Chromium (Hex)	mg/L	" "	" "	" "
Lead	mg/L	" "	" "	" "
Mercury	µg/L	" "	" "	" "
Nickel	mg/L	" "	" "	" "
Selenium	mg/L	" "	" "	" "
Silver	mg/L	" "	" "	" "
Zinc	mg/L	" "	" "	" "
Cyanide	mg/L	" "	" "	" "
Endosulfan	µg/L	" "	" "	0.01
Endrin	µg/L	" "	" "	0.01
HCH	µg/L	" "	" "	See Table II-4, pg 34 of 2001 Ocean Plan
Radionuclide	pCi/L	Grab	" "	--

⁴ Minimum Levels (taken from Appendix II of the 2001 California Ocean Plan) represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences.

The Discharger must instruct their laboratory to establish calibration standards so that the Minimum Level is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point in the calibration curve.

The Discharger must report with each sample result the reported Minimum Level and the laboratory's current Method Detection Limit (MDL).

Dischargers must report analytical results using the following protocols:

1. Sample results greater than or equal to the reported Minimum* Level must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the reported Minimum Level, but greater than or equal to the laboratory's MDL, must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").
3. Sample results less than the laboratory's MDL must be reported as "Not Detected", or ND.

Protection of Human Health – Non-Carcinogens

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Minimum Levels (µg/L)	
				Gas Chroma-tography Method	Gas Chromatography / Mass Spectrometry Method
Acrolein	mg/L	24-hr. Composite	Semi-Annually, or at least once during each operational period, whichever is greater ⁵	2	5
Antimony	g/L	" "	" "	All methods contained in Table II-3, pg 33 of 2001 Ocean Plan	
Bis(2-chloroethoxy) Methane	mg/L	" "	" "	--	5
Bis(2-chloroisopropyl) Ether	g/L	Grab	" "	10	2
Chlorobenzene	mg/L	24-hr. Composite	" "	0.5	2
Chromium (III)	g/L	" "	" "	See Table II-3. pg 33 of 2001 Ocean Plan	
Di-n-butyl Phthalate	g/L	" "	" "	--	10
Dichlorobenzenes	g/L	" "	" "	See Table II-2. pg 30 of 2001 Ocean Plan	
Diethyl Phthalate	g/L	" "	" "	10	2
Dimethyl Phthalate	g/L	" "	" "	10	2
4,6-dinitro-2-methylphenol	mg/L	" "	" "	10	5
2,4-dinitrophenol	mg/L	" "	" "	5	5
Ethylbenzene	g/L	" "	" "	0.5	2
Fluoranthene	mg/L	" "	" "	10	1
Hexachlorocyclopentadiene	mg/L	" "	" "	5	5
Isophorone	g/L	" "	" "	10	1
Nitrobenzene	mg/L	" "	" "	10	1
Thallium	mg/L	" "	" "	See Table II-3. pg 33 of 2001 Ocean Plan	
Toluene	g/L	" "	" "	0.5	2
Tributyltin	µg/L	" "	" "	--	--
1,1,1-trichloroethane	g/L	" "	" "	0.5	2
1,1,2-trichloroethane	g/L	" "	" "	0.5	2

⁵Sampling will not be required for these substances providing the Discharger submits quarterly certification that such substances are not added to the waste stream, and that no change has occurred from activities that could cause such substances to be present in the waste stream. Such election does not relieve the discharger from the requirement to meet effluent limitations for these substances.

Protection of Human Health - Carcinogens

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Minimum Levels (µg/L)	
				Gas Chromatography Method	Gas Chromatography / Mass Spectrometry Method
Acrylonitrile	µg/L	24-hr. Composite	Semi-Annually, or at least once during each operational period, whichever is greater ⁵	2	2
Aldrin	ng/L	" "	" "	0.005	--
Benzene	mg/L	" "	" "	0.5	2
Benzidine	ng/L	" "	" "	--	5
Beryllium	µg/L	" "	" "	All methods contained in Table II-3, pg 33 of 2001 Ocean Plan, with exception to the Direct Current Plasma and Flame Atomic Absorption methods	
Bis(2-chloroethyl) Ether	µg/L	" "	" "	--	1
Bis(2-ethylhexyl) Phthalate	mg/L	" "	" "	10	5
Carbon tetrachloride	mg/L	" "	" "	0.5	2
Chlordane	ng/L	" "	" "	0.1	--
Chlorodibromomethane	µg/L	" "	" "	0.5	2
Chloroform	mg/L	" "	" "	0.5	2
DDT	ng/L	" "	" "	See Table II-4, pg 34 of 2001 Ocean Plan	
1,4-dichlorobenzene	mg/L	" "	" "	See Table II-1 and II-2, pgs. 29-30 of 2001 Ocean Plan	
3,3-dichlorobenzidine	µg/L	" "	" "	--	5
1,2-dichloroethane	mg/L	" "	" "	0.5	2
1,1-dichloroethylene	mg/L	" "	" "	0.5	2
Dichlorobromomethane	µg/L	" "	" "	0.5	2
Dichloromethane	mg/L	" "	" "	0.5	2
1,3-dichloropropene	mg/L	" "	" "	See Table II-1 and II-2, pgs. 29-30 of 2001 Ocean Plan	
dieldrin	ng/L	" "	" "	0.01	--
2,4-dinitrotoluene	mg/L	" "	" "	10	5
1,2-diphenylhydrazine	µg/L	" "	" "	--	1
Halomethanes	mg/L	" "	" "		
Heptachlor	µg/L	" "	" "	0.01	--
Heptachlor epoxide	µg/L	" "	" "	0.01	--
Hexachlorobenzene	ng/L	" "	" "	--	1
Hexachlorobutadiene	mg/L	" "	" "	5	1
Hexachloroethane	mg/L	" "	" "	5	1

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Minimum Levels (µg/L)	
				Gas Chromatography Method	Gas Chromatography / Mass Spectrometry Method
N-nitrosodimethylamine	mg/L	" "	" "	10	5
N-nitrosodi-N-propylamine	mg/L	" "	" "	10	5
N-nitrosodiphenylamine	mg/L	" "	" "	10	1
PAHs	µg/L	" "	" "	See Appendix II, pg. 29 of 2001 Ocean Plan	
PCBs	ng/L	" "	" "	See Table II-4, pg 34 of 2001 Ocean Plan	
TCDD equivalents	pg/L	" "	" "	--	--
1,1,2,2-tetrachloroethane	g/L	" "	" "	0.5	2
Tetrachloroethylene	mg/L	" "	" "	0.5	2
Toxaphene	ng/L	" "	" "	0.5	--
Trichloroethylene	mg/L	" "	" "	0.5	2
2,4,6-trichlorophenol	µg/L	" "	" "	10	10
Vinyl Chloride	mg/L	" "	" "	0.5	2

C. SURVEY OF DILUTION WITHIN POWER PLANT COOLING WATER CHANNEL

Should all the following operating conditions occur simultaneously:

- The desalination facility operate at full capacity (i.e. all four reverse osmosis trains are active); and
- Effluent salinity be greater than 34,000 mg/L TDS; and
- No flow from the power plant be provided that would dilute the desalination facility discharge;

The Discharger shall perform a survey of dilution within the power plant discharge channel, according to the following procedures. The purpose of the survey is to quantify dilution within the channel, in anticipation that the power plant's once-through cooling water system may be eliminated.

1. **Sampling** – The entire water column shall be sampled for salinity and density, at stations 20 feet, 40 feet, and 80 feet upstream of the discharge point; and stations 20 feet, 40 feet, and 80 feet downstream of the discharge point (6 stations total). Other stations may be added at the Discharger's discretion to improve data resolution. If the differences between salinity or density measurements at each monitoring station are not sufficient to develop transects, the monitoring stations shall be moved closer to the discharge point to improve resolution. If moving the monitoring stations closer to the discharge point is not effective, a dye test may be used to approximate the shape and behavior of the discharge plume within the channel. Ocean conditions (e.g. tide, swell height, etc.) should be observed. The Executive Officer shall be notified at least 48 hours prior to the sampling event.
2. **Analysis** – The data shall be interpolated using appropriate methods, to generate transects of salinity and density, which will illustrate the shape and behavior of the discharge plume within the power plant discharge channel. The data shall be used to approximate a "zone of initial dilution" and a minimum initial dilution ratio (channel water:wastewater) within the channel.
3. **Reporting** – A written report, which includes a discussion of operating conditions (e.g. discharge volume, effluent salinity), transects, and a detailed discussion of the analytical results, shall be submitted to the

Executive Officer **within 90 days of the sampling event.**

If the above operating conditions do not occur simultaneously during the life of this Order, this survey is not required.

D. SAMPLING AND ANALYSIS PROVISIONS

Sampling and analysis shall be in accordance with the following:

1. All sampling, sample preservation, and analysis shall be performed in accordance with the latest edition of Title 40 Code of Federal Regulations (CFR) Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants", promulgated by the United States Environmental Protection Agency, unless otherwise noted. The Regional Board and/or EPA, at their discretion, may specify test methods which are more sensitive than those specified in 40 CFR 136.
2. All analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services or EPA or at laboratories approved by the Executive Officer.
3. All analytical data shall be reported with method detection limits (MDLs) and with identification of either practical quantitation levels (PQLs) or limits of quantitation (LOQs).

E. REPORTING PROVISIONS

1. Quarterly monitoring reports shall be submitted by the 30th day of January, April, July, and October for the preceding calendar quarter.
2. Annual reports shall be submitted by January 30 of each year, as specified in Section C.16 of "Standard Provisions and Reporting Requirements for National Pollutant Discharge Elimination System Permits", dated January 1985.
3. All monitoring reports submitted to the Regional Board shall be signed and certified in accordance with 40 CFR 122.22, by either a principal executive officer or ranking elected official, or by a duly authorized representative of that person.
4. If the Discharger monitors any pollutant more frequently than is required, the results of such monitoring shall be included in the monitoring reports.
5. Monitoring data shall be arranged in tabular form so that the date, constituents, and concentrations are readily discernible. The data shall be summarized in such a manner to clearly illustrate whether the discharge complies with waste discharge requirements.
6. The Discharger shall deliver a copy of each monitoring report in the appropriate format to:

**California Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401**

7. The Discharger shall assure that records of all monitoring information are maintained and accessible for a period of at least five years from the date of the sample, report, or application. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or by the request

of the Executive Officer. Records of monitoring information shall include:

- a. The date, exact place, and time of sampling or measurements;
- b. The individual(s) who performed the sampling, and/or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used;
- f. All sampling and analytical results;
- g. All monitoring equipment calibration and maintenance records;
- h. All original strip charts from continuous monitoring devices;
- i. All data used to complete the application for these waste discharge requirements; and,
- j. Copies of all reports required by these waste discharge requirements.

Ordered By: _____

Executive Officer

Date